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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/823,933

04/14/2004

Nathan Gerard Cormier

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01/30/2006

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SUITE 2600

ST. LOUIS, MO 63102-2740

EXAMINER

WIEHE, NATHANIEL EDWARD

ART UNIT

PAPER NUMBER

3745

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/823,933	CORMIER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Nathan Wiehe	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 10 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-6,8,9,11,13-17 and 19 have been considered but are moot in view of the new ground(s) of rejection.

Due to the discovery of pertinent prior art the indication of allowable subject matter in the previously presented claims 7, 12 and 20 is regrettably withdrawn.

### ***Drawings***

The drawings were received on 27 December 2005. These drawings are accepted.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 6, 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Hidalgo (6,843,638). Hidalgo discloses a variable vane assembly (10) for a gas turbine engine comprising a variable vane (12) with a radially inner spindle (40) and a radially outer spindle (32) having a groove (34) comprising two machined faces and a retained (44), with two opposing arms (54) engaging said groove on two opposing sides of the vane (12) for retention of said vane (See Fig. 1).

In regard to claim 6, the limitation "said retainer is configured to facilitate reducing wear of said variable vane" is a functional limitation and does not further define the claimed structure. Since the structure of Hidalgo's retainer is identical to the structure claimed by the Applicant the retainer of Hidalgo would inherently perform the function as claimed.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 13-17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agram (6,129,512) in view of Hidalgo. Agram discloses a variable vane assembly comprising a row of variable vane (2) including an outer spindle (3) and an inner spindle (5). Agram also discloses a bushing (27), including a base (not referenced) and a body (not reference) of different cross-sectional profiles, extending circumferentially around radially inner spindle (5). Agram's discloses that his invention is used in turbo-machines, including gas turbine engines, and contains a rotor shaft (26), a plurality of rows (one shown) of rotor blades (not referenced), and an outer shroud (7) rotatably coupled to vanes (2). Agram also discloses an inner shroud (12) also rotatably coupled to vanes (2). The inner shroud (12) of Agram's invention contains a plurality of circumferentially spaced openings (not referenced) that have a substantially identical cross-sectional shape as the bushing body (not referenced).

Art Unit: 3745

Agram's inner shroud (12) also includes a plurality of circumferentially spaced stem openings (not referenced) receiving a portion (31) of radially inner spindle (5). Agram further discloses a retention arrangement (31,21) located on the inner spindle of the variable vane. Agram does not teach the use of a retainer with opposed arms cooperating with the circumferentially extending groove of the vane's inner spindle. Hidalgo discloses a variable vane assembly (10) for a gas turbine engine comprising a variable vane (12) with a radially inner spindle (40) and a radially outer spindle (32). The vane's spindle has a groove (34) comprising two machined faces which cooperates with a retainer (44) including two opposing arms (54) that is inserted into a opening (58) that extends substantially axially through the shroud and couples the retainer to said shroud (See Fig. 4) and engaging said groove on two opposing sides of the vane (12) for retention of said vane. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the retention arrangement of Agram by using a circumferentially extending groove and retainer with opposed arms as taught by Hidalgo in order to securely retain and limit radial movement of the variable vane.

Regarding the method claims 1-5, the modified apparatus of Agram satisfies all of the claimed assembly steps because it would have been apparent to assemble the apparatus of Agram in the same manner.

In regard to claim 13, the limitation "said retainer configured to facilitate reducing bending moments induced to said radially outer spindle" is a functional limitation and does not further define the claimed structure. Since the structure of Agram's modified

retainer is identical to the structure claimed by the Applicant the retainer of Agram would inherently perform the function as claimed.

In regard to claim 14, the limitation "said retainer is configured to facilitate reducing wear of said variable vanes" is a functional limitation and does not further define the claimed structure. Since the structure of Agram's modified retainer is identical to the structure claimed by the Applicant the retainer of Agram would inherently perform the function as claimed.

#### ***Allowable Subject Matter***

Claims 10 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

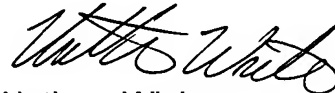
#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Wiehe whose telephone number is (571)272-8648. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nathan Wiehe  
Examiner  
Art Unit 3745



EDWARD K. LOOK  
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1/25/06